

REMARKS

Favorable reconsideration of this application as presently amended and in light of the following discussion is respectfully requested.

Claims 1-5, 7-9 and 11-22 are pending in the present application. Claims 1-5 and 7-9 are amended, Claims 6 and 10 are cancelled without prejudice, and Claims 11-22 are added by the present amendment.

In the outstanding Office Action, Claim 10 was rejected under 35 U.S.C. §112, second paragraph, as being indefinite; Claims 1-5, 8 and 9 were rejected under 35 U.S.C. §103(a) as unpatentable over Mannava (U.S. Patent No. 5,522,706) in view of Nagaoka (JP 57-193701); and Claims 6 and 7 were rejected under 35 U.S.C. §103(a) as unpatentable over Mannava in view of Nagaoka and further in view of Huther (U.S. Patent No. 4,471,008).

The specification has been amended at page 4, lines 21-24 in order to change the reference number of the base collar from 24 to 30. Support for this correction may be found at page 4, line 25 of the specification. Thus, no new matter has been added.

The specification has also been amended at page 6, lines 2-5 in order to identify the bevel by adding reference number 48. This bevel is shown in Figures 2 and 4 and also is identified as such in originally filed Claim 4. Thus, no new matter has been added.

The specification has been further amended at page 7, lines 20-23, in order to introduce reference number 82 for the axis of the slot. This axis is shown in Figures 7

and 8, and also identified as such in originally filed Claim 6. Thus, no new matter has been added.

Regarding the rejection of Claim 10 under 35 U.S.C. §112, second paragraph, this claim has been cancelled. Thus, it is respectfully requested this rejection be withdrawn.

Independent Claim 1 has been amended to more clearly recite the novel features. More specifically, Claim 1 has been amended to recite a reference point for a slot, and that an angle between the reference point and a center point of an adjacent hole is between 2 and 10 sexagesimal degrees. This feature finds support in the specification, for example, from page 7, line 17 to page 8, line 4 and also in original Claim 6, which is now cancelled. No new matter has been added.

The outstanding rejections on the merits of the claims are respectfully traversed for the following reasons.

Briefly recapitulating, amended Claim 1 is directed to a disk of a disk rotor for a gas turbine. The disk includes, *inter alia*, an outer portion having a series of holes and a series of slots. Each slot has a reference point for placing a corresponding vane, and an angle between the reference point of a slot and a central point of an adjacent hole of the series of holes is between 2 and 10 sexagesimal degrees. The reference point is defined by an intersection of (i) an axis of the slot in a middle side section of the disk with (ii) an extension of a side surface of the outer portion, the axis of the slot being radial from an axial direction of the disk.

In a non-limiting example, Figure 8 shows the reference point 80 as being at the intersection of axis 82 and the extension of side surface 29. Further, Figure 5 shows that the reference point 80 is also in the middle side section of disk 20 and Figure 1 shows that the axis (line II-II) of the slot is radial from an axial direction of the disk.

Turning to the applied art, Mannava is directed towards a laser shock peened disks with loading and locking slots for turbo machinery. More specifically, Mannava shows in Figure 1 a rotor disk 2 having plural slots 54 cut into a rim 10 of the disk 2 and plural holes 18 formed under rim 10. However, Mannava is completely silent about defining a reference point relative to a slot 54 and also about defining an angle of the reference point relative to a hole 18 into the disk 2.

The outstanding Office Action, addressing similar features to those discussed above with regard to Claim 1, states in the numbered paragraph 3 on page 4 that "the angle 83 appears to fall into the specified range (see Fig. 2 [of Mannava]). The exact value of the angle would depend on the thickness of the rotor blade, dimensions of the diameter and the angle of the vane relative to the axial hole." Further, in the next paragraph, the outstanding Office Action states that "[t]here is a reasonable basis that angle 83 falls within the prescribed range since the combined references contains the same structure."

It is noted that the outstanding Office Action did not try to point out or indicate where in the applied art a reference point is defined or shown. In addition, the outstanding Office Action relies on Figure 2 of Mannava for showing an angle between

two points, which cannot be simultaneously in Figure 2. In this regard, Figure 2 of Mannava shows "a transverse, partly sectional view through the disk and blade assembly taken along line **2-2** as illustrated in FIG. 1", as disclosed by Mannava at col. 4, lines 10-12. However, another sectional view, parallel and not perpendicular to the largest area of the disk 2 of Mannava is needed for showing the position of the two points.

In other words, even assuming *arguendo* that Mannava discloses and defines a reference point, Figure 2 cannot show an angle between the reference point and a central point of hole 18 as these two points would be in the transversal partial sectional view of Figure 2 and another one, not shown.

It is noted in this regard that Applicant's Figure 1 clearly shows an angle 83 between the center of the hole 27 and the reference point 80 in a cross-sectional view.

Further, the statement of the outstanding Office Action in the last two lines on page 4, that there is a reasonable basis that angle 83 falls within the prescribed range, does not have any basis because although the references include structures in the same field of technology as Applicant's device, there is no indication that the applied art did appreciate the importance of such reference point.

Furthermore, it appears that the outstanding Office Action relies on Figure 2 of Mannava for asserting that angle 83 appears to fall into a specified range. Even assuming *arguendo* that Figure 2 of Mannava shows the two points, Mannava does not indicate that the figures are at scale and thus, no inference could be made from Figure

2 of Mannava whether an angle has a certain value or a certain range based only on a visual inspection of the figure. In this respect it is noted that MPEP 2125, second full paragraph, specifically states that "when the reference does not disclose that the drawings are to scale and is silent as to the dimensions, arguments based on measurement of the drawing features are of little value." (emphasis added).

Huther and Takashji have been considered but neither of this reference discloses either a reference point or a value for an angle between the reference point and a center of a hole of the disk.

Therefore, Applicant respectfully submits that the applied art does not teach or suggest (i) a reference point defined as recited by independent Claim 1, and (ii) an angle between 2 and 10 sexagesimal degrees for the reference point as also recited by Claim 1. Regarding the value of the angle, it is noted that the sexagesimal degrees are different from the normal degrees, which use a 360 degrees base and not a 60 degrees base.

New Claims 11-22 have been added to vary the scope of protection. The new claims are supported by the originally filed specification. More specifically, new Claim 11 finds support in the specification at page 7, lines 10-12, new Claim 12 finds support in the specification at page 7, lines 17-19, new Claim 13 finds support, for example, in Figure 1, and new Claims 14-22 are similar to the pending claims. No new matter has been added.

Because independent Claim 14 recites the novel feature discussed above with regard to independent Claim 1, it is believed that new Claims 14-22 also patentably distinguish over the applied art.

Accordingly, in light of the above discussion and in view of the enclosed amendments, the present application is believed to be in condition for allowance and an early and favorable action to that effect is respectfully requested. If, however, there are any remaining unresolved issues that would prevent the issuance of the Notice of Allowance, the Examiner is urged to contact the undersigned at (540) 361-2601 in order to expedite prosecution of this application.

Respectfully submitted,
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